

Traffic Safety Sampler

Deirdre Thompson ~ Will Mathies ~ Mark McCulloch
Chuck Bergmann ~ Gary Loyola ~ Kim Lariviere
Dean Kanitz ~ Hilary Owen ~ Garrett Dawe ~ Bonnie Wood



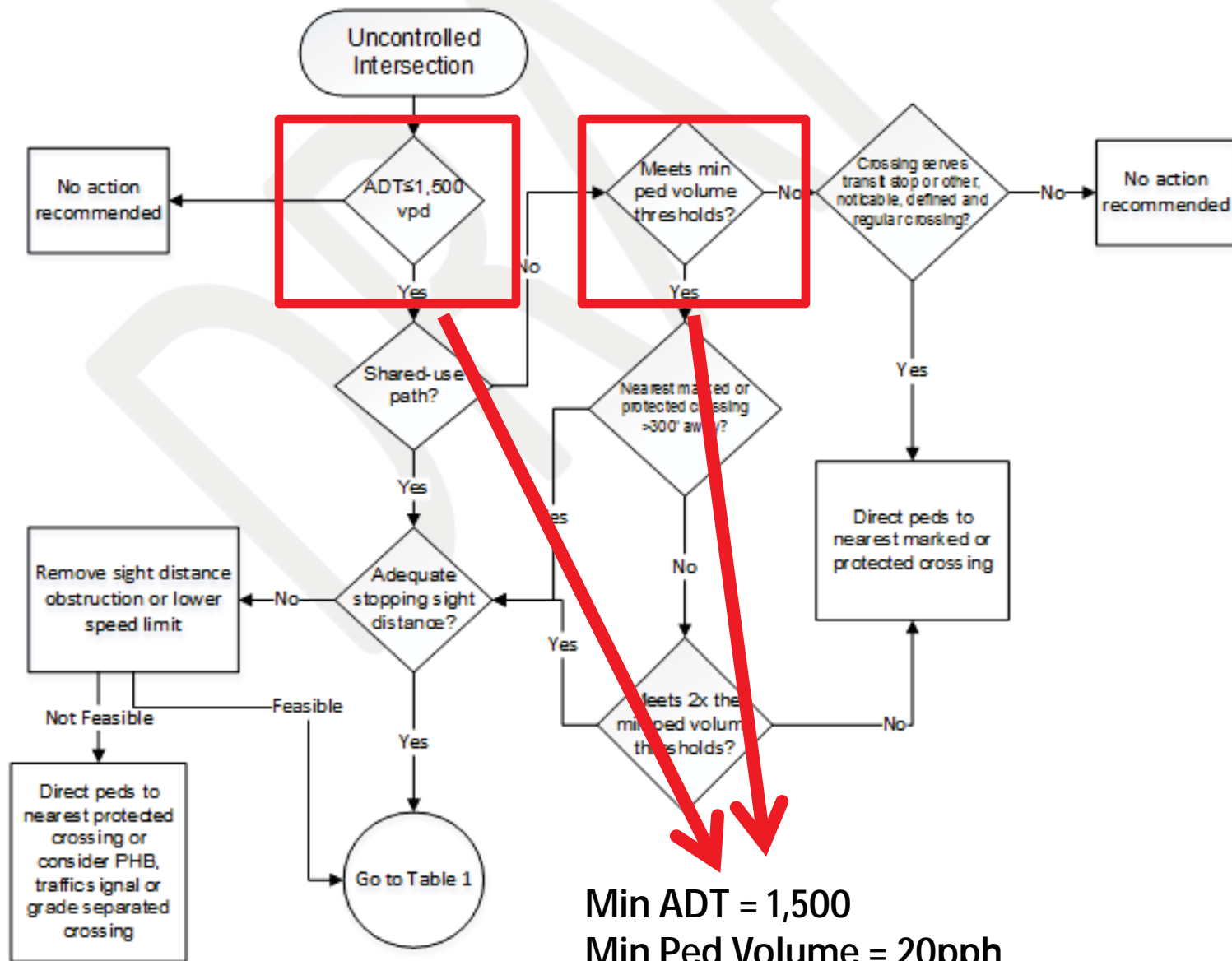
Much Ado About Crosswalks?

Deirdre Thompson

MDOT Pedestrian and Bicycle Safety Engineer

Crosswalk?!?!

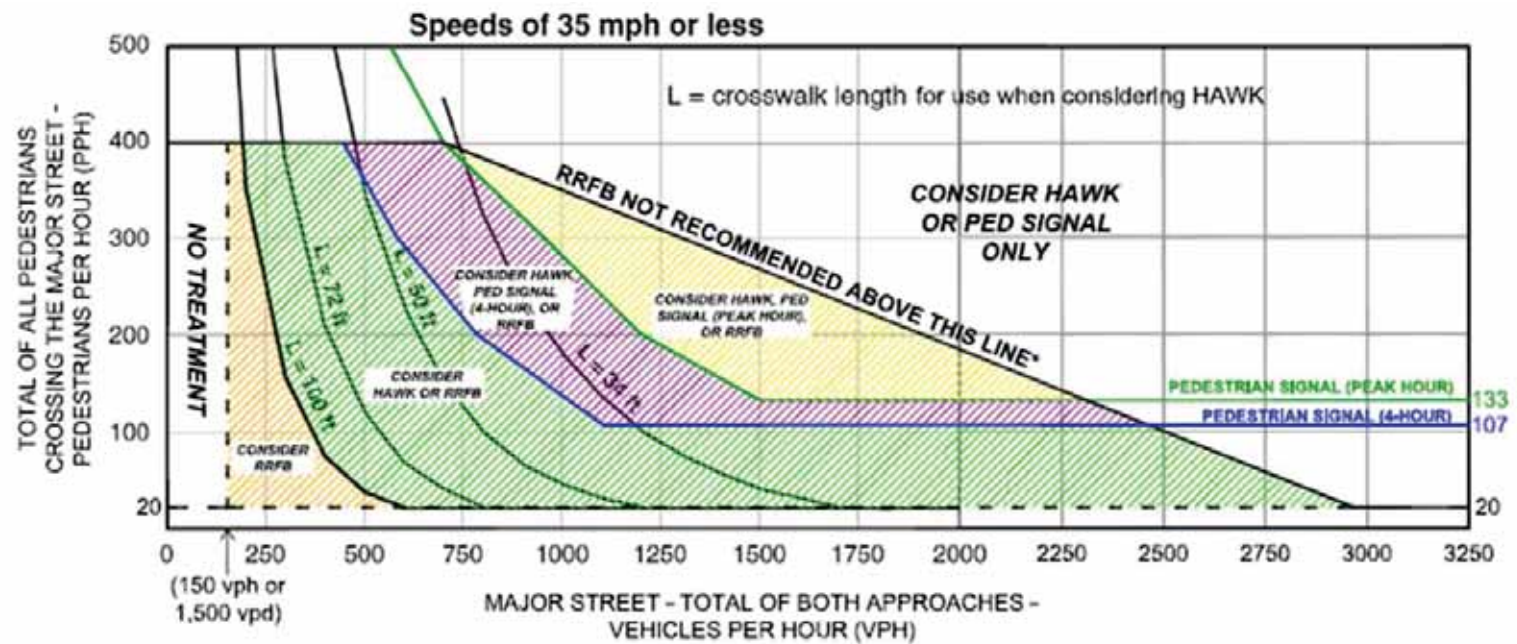




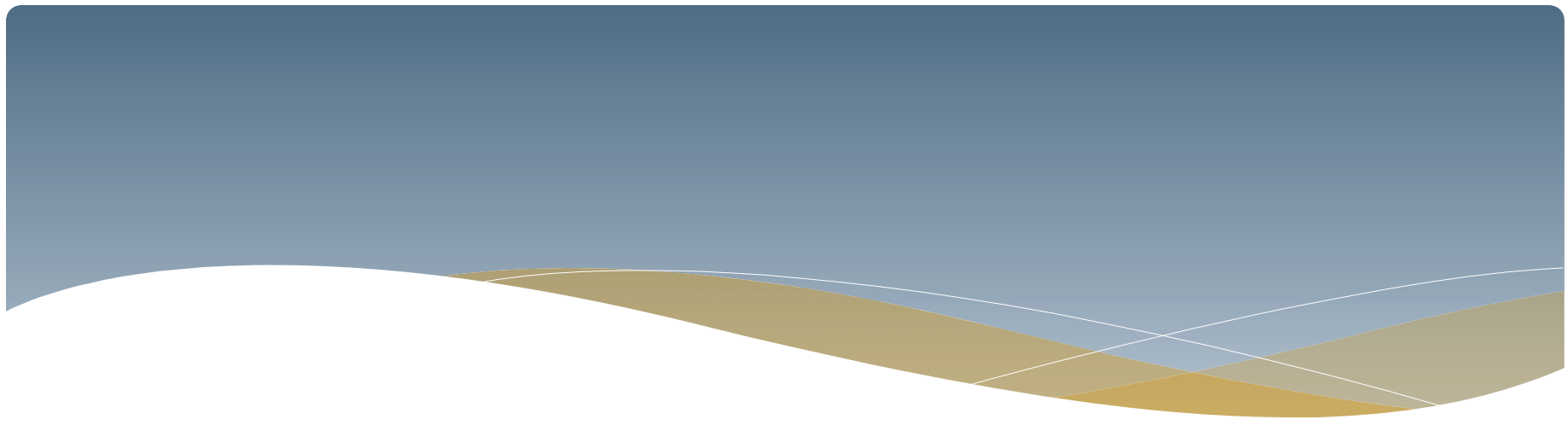
Min ADT = 1,500

Min Ped Volume = 20pph

[illegible]



* RECOMMENDATION BASED ON CITY OF BOULDER SAFETY EVALUATIONS AT EXISTING RRFB SITES AND OBSERVED IMPACTS TO VEHICULAR TRAFFIC OPERATIONS



Wrong Way Crashes

Partial Cloverleaf Interchange
(PARCLO)

Will Mathies, P.E.
Metro Region Safety Engineer

The Problem



- **CONFUSION !!**
- **Sign's Height**
- **Directional Arrow**

Data/Background



- Total of 110 crashes between 2005 and 2009.
- 10 occurred at I-94 & M-3 interchange
- Total of 21 crashes at PARCLO Interchange
- 48% occurred at I-94 & M-3 Interchange

The Solution

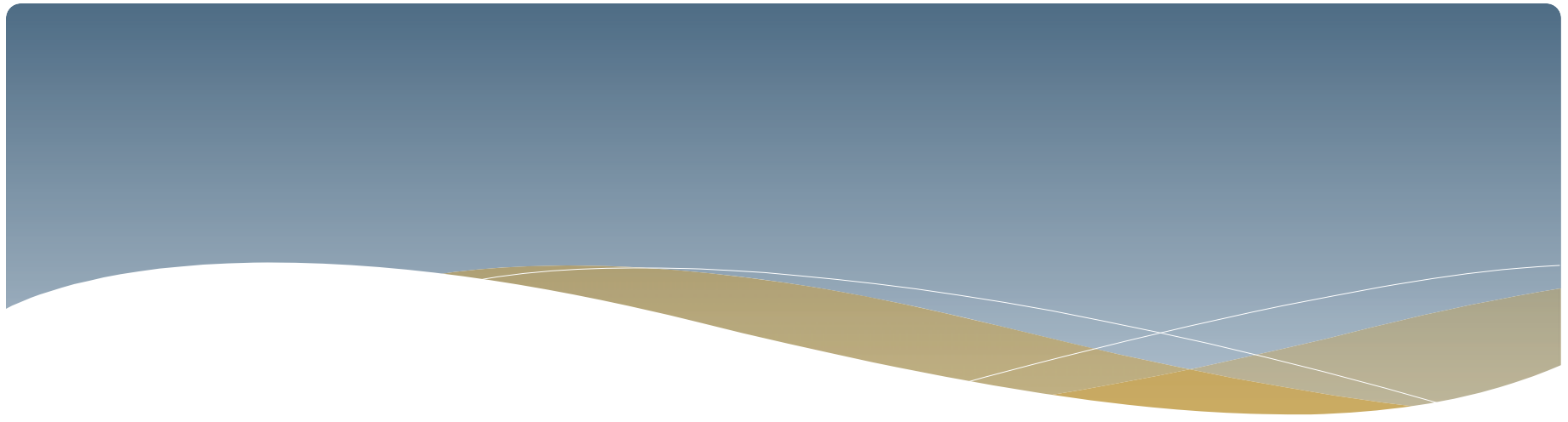


- Qwick Kurb
- Adjust Sign
- Pavement Markings

Results

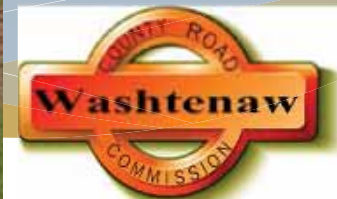
- “0” Wrong Way Crashes Since June 2012





Mini-Roundabouts

A POTENTIAL COST EFFECTIVE SOLUTION TO
SAFELY ADDRESS CONGESTED INTERSECTIONS



The Problem: Lack of Resources to upgrade AWSC Intersections



- 66 AWSC intersections in Washtenaw County
- 13 intersections have warrants for a traffic signal
- Some intersections have 5 minute delay at peak
- Cost up to \$1 million for intersection improvement
- Infrastructure needs > resources

Potential Solution: Mini-Roundabouts

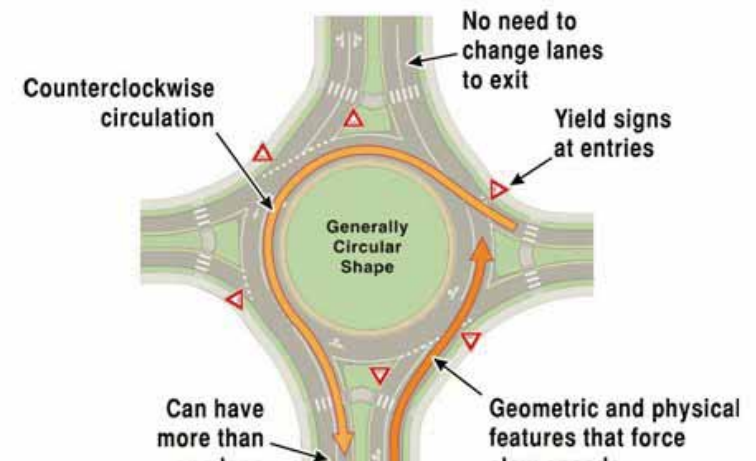
Not the same as U.K. mini

BENEFITS OF MINI'S

- Compact Size
- Better Level of Service (LOS)
 - < 15,000 vpd
- Safety; Equal to AWSC when designed correctly
- Reduced Construction Costs
- Reduction in Vehicle Emissions

CONSTRAINTS

- High Truck Traffic
- Light Volumes on Minor Street.



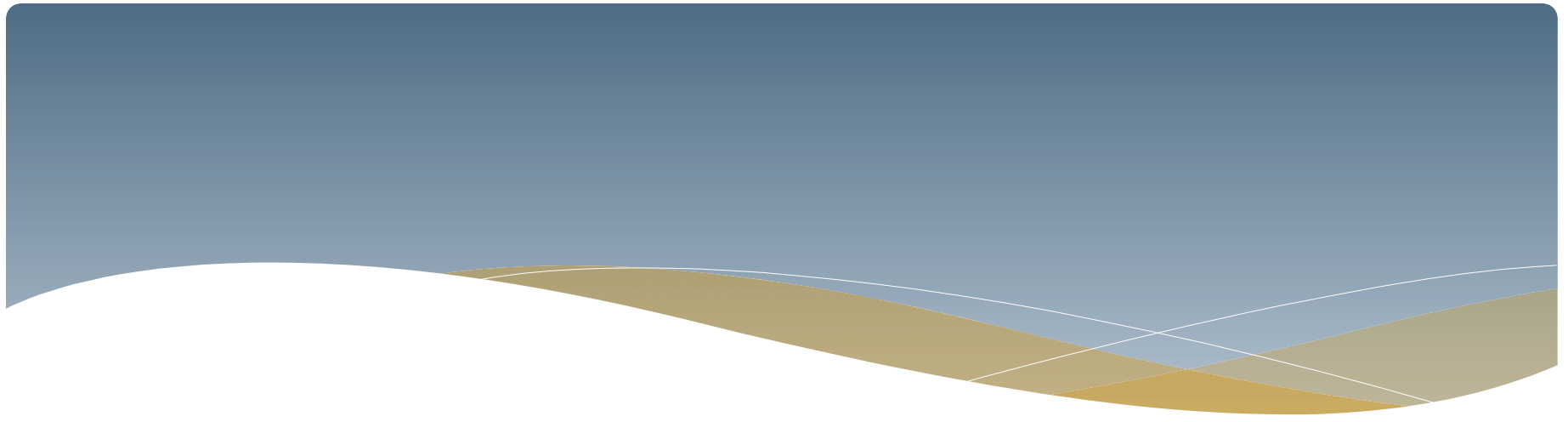
Textile Road at the Intersections of Hitchingham & Stony Creek Roads



Projected Outcomes



- Better LOS, reduced emissions, at a reduced cost to fit into your FY budget.



Work Zone – Roadside Delineation



Chris Brookes
Work Zone Delivery Engineer
brookesc@michigan.gov
517-242-6486

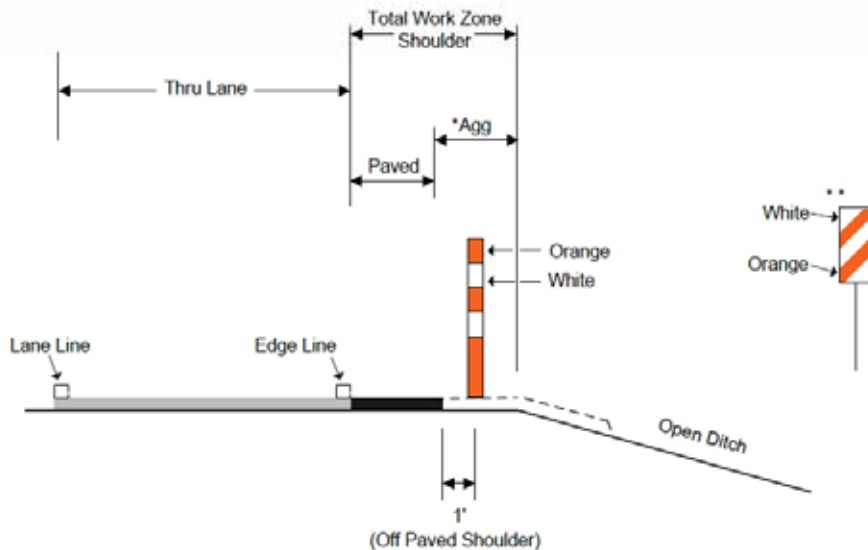
Chuck Bergmann
Work Zone Technician
bergmannnc@michigan.gov
517-388-5228

Safety Tools for Narrow Shoulders

SOA 2013-001

Effective Oct 2013

Work Zone Shoulders on a **3R or 4R Freeway** project is next to an open ditch and that distance from the edge line to hinge point is **equal to 3' or less**, shoulder delineation devices must be used



* If the shoulder has been temporarily widened use the material as detailed in FUSP 12SP307A.

** Vertical Panels are an option. Contact the Work Zone Delivery Engineer for additional guidance.

See WZD-126 for more information

Safety Tools

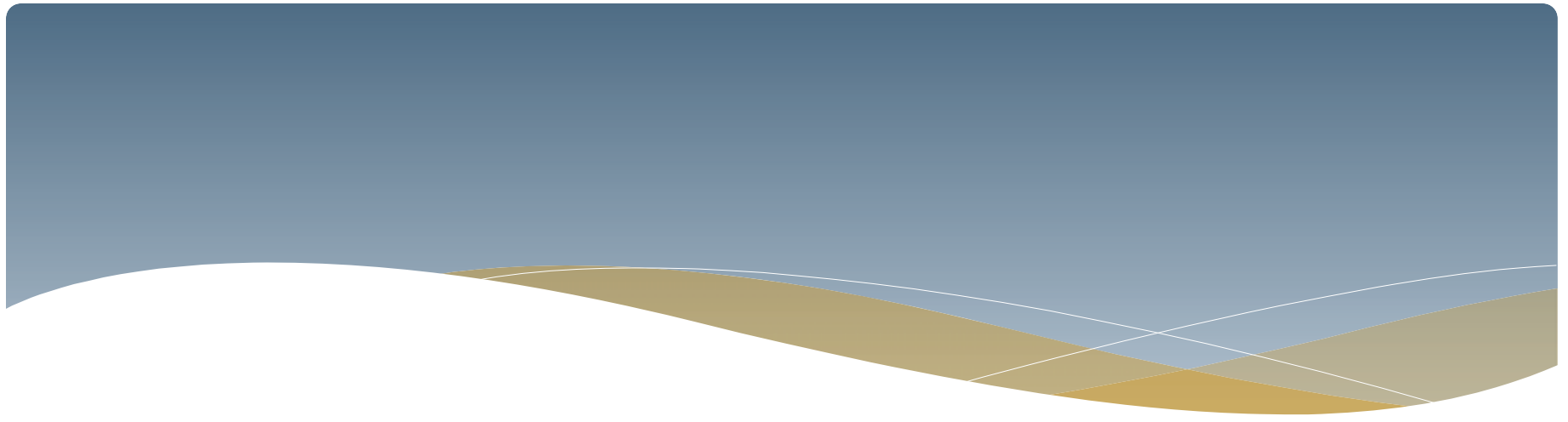


Drum Sheeting



Temporary Wet Reflective Pavement Markings





Optical Speed Bars

I-94 EB at Exit 12 (Sawyer Rd)



EB loop ramp

12 run-off-road crashes
5 years

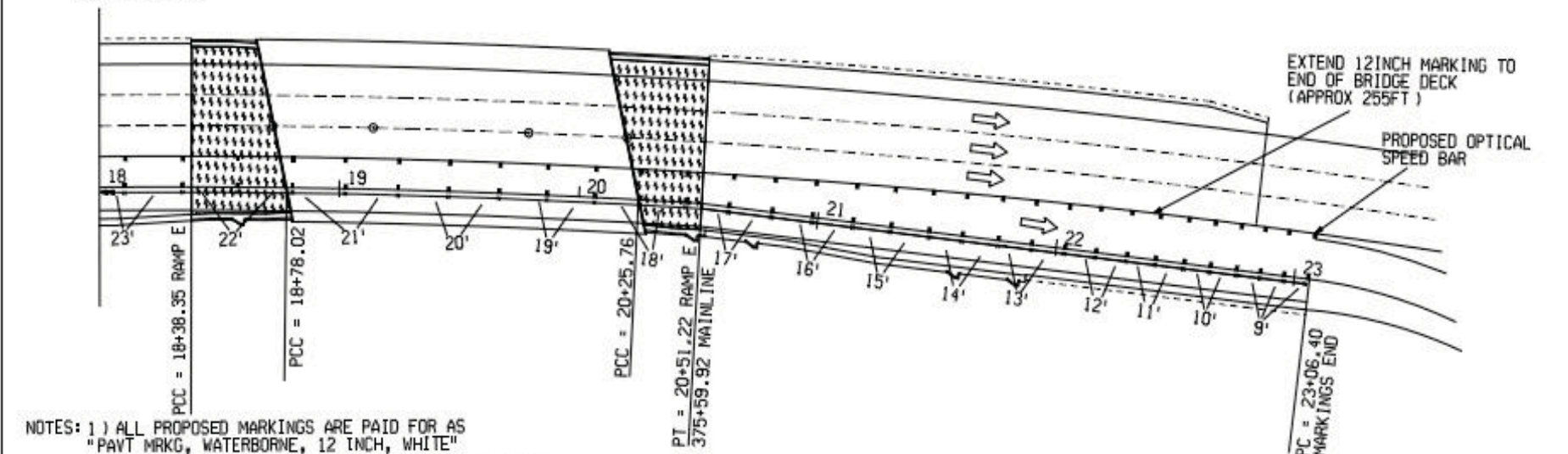
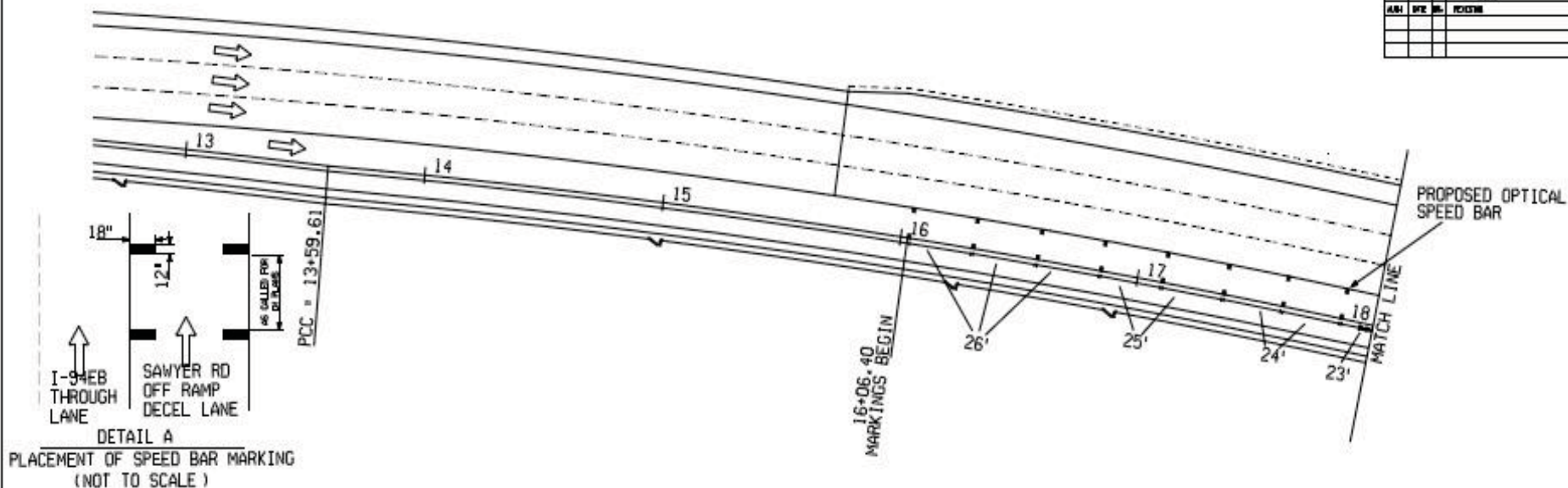
Gary Loyola – Coloma TSC Traffic Engineer



Exit ramp is so long...
You could forget you are on a ramp.

Play video

DATE	BY	CHKD	DATE



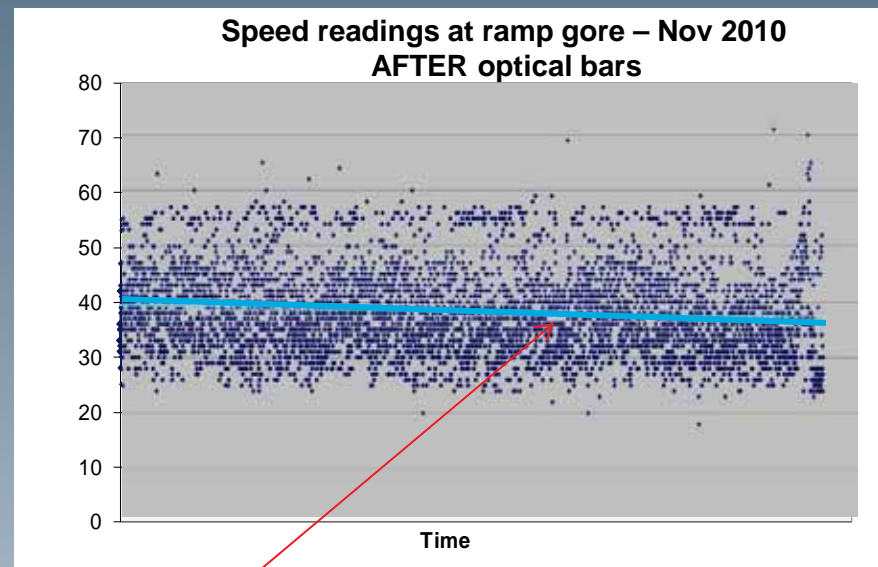
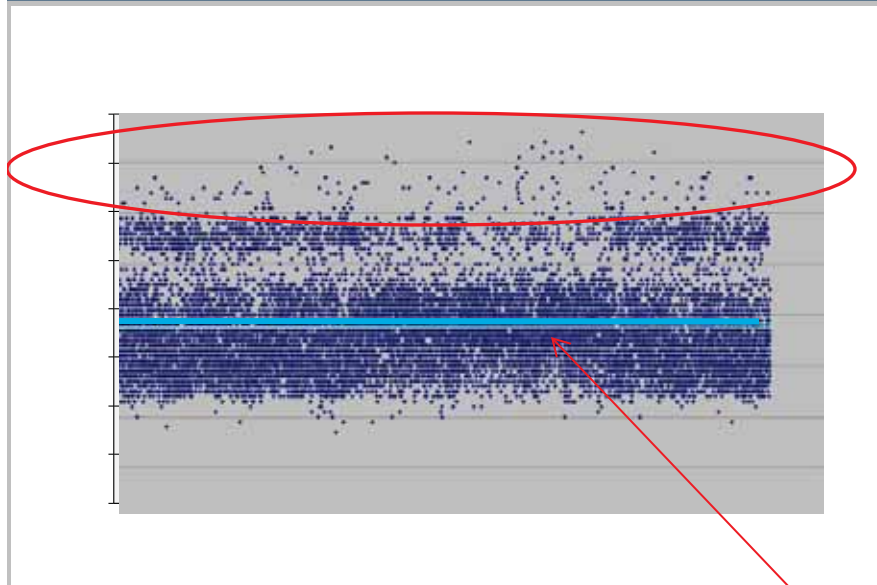
- NOTES: 1) ALL PROPOSED MARKINGS ARE PAID FOR AS "PAVT MRKG, WATERBORNE, 12 INCH, WHITE"
- 2) PROPOSED OPTICAL SPEED BARS ARE 18 INCHES WIDE (SEE DETAIL A)
- 3) PROPOSED OPTICAL SPEED BARS ARE DIMENSIONED FROM THE EDGES OF THE MARKING TO REFLECT THE CLEAR DISTANCE



PAVEMENT MARKING SHEET

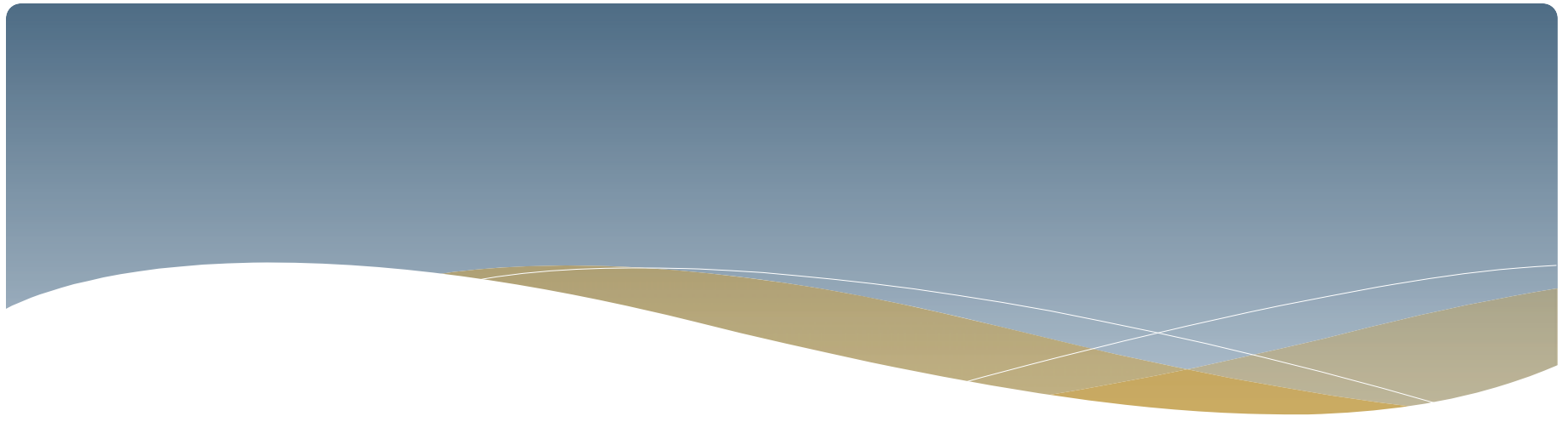
MDOT Michigan Department of Transportation		[-94EB AT SAWYER RD (EXIT 12 OFF RAMP)]	
DATE	CON. NO.	JOB NO.	DESIGN UNIT
09/20/10	11015	107002	

DATE: 09/20/10
 DESIGNED BY: [blank]
 CHECKED BY: [blank]
 INCHES ON PLOT: [blank]



Avg Speed 38 mph

0.12%	Motorists exceeding 70 mph	0.04%
0.44%	Motorists exceeding 65 mph	0.11%
1.12%	Motorists exceeding 60 mph	0.32%



Senior Mobility

Kim Lariviere

Strategic Highway Safety Engineer

The problem



- By 2030 20% of the population is expected to be over the age of 65.
- By 2029 all Baby Boomers will be over the age of 65.

Data/Background

- In 2012 in Michigan 17.8% of the licensed drivers were over the age of 65.
- Adults over the age of 65 account for over 20% of the fatalities.

May 11-14, 2014

Detroit Marriott
at the Renaissance
Center



**Best Practices from Around the World:
A Decade of Progress**

Save the dates for the 2014 North American Conference on Elderly Mobility in Detroit, Michigan. The conference will feature best practices in older adult mobility and highlight new developments since the conference was first held in 2004.

When: May 11-14, 2014

Where: Detroit Marriott at the Renaissance Center

What: Best Practices in:
• Alternative Transportation, Mobility Management and Coordination
• Infrastructure and Vehicles
• Driver Education and Training
• Driver Screening and Assessment
• Housing and Land Use

Registration:

Conference registration is available online at:
www.registration.com/2014NACEM
The early conference registration rate is \$350.

Keynote Speakers:

Monday, May 12: Opening Keynote
Lou Wilentz, former CNN Anchorman and Author

Wednesday, May 14: Closing Keynote
Mitch Albom, Best-selling author, nationally-syndicated columnist, radio host, network television commentator, playwright and screenwriter

Hotel Reservations:

Detroit Marriott at the Renaissance Center
400 Renaissance Drive
Detroit, MI 48243

Ry telephone: 313-568-8000

Online: <http://www.marriott.com/go/elderlymobilityconference>
Reference the Elderly Mobility Conference

Guest room rate: \$159 plus tax

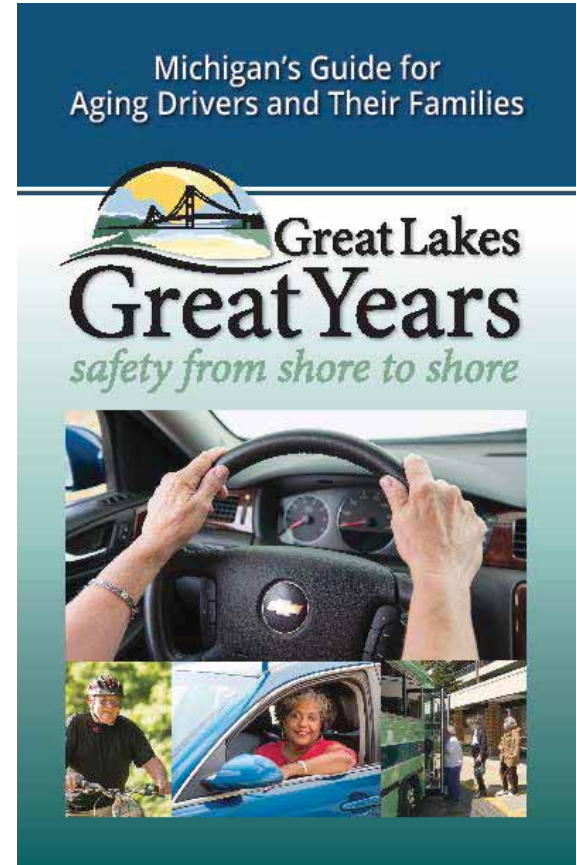
For all conference information,
including the conference agenda,
registration info, sponsorship
forms and featured speakers:

Diane Drago, Conference Coordinator
2014 NACEM
c/o Diversified Management Services, LLC
855. 888. 7776
Ann Arbor, MI 48107
214.747.2194
drago@diversified.com
www.registration.com/2014NACEM

SAVE THE DATE!

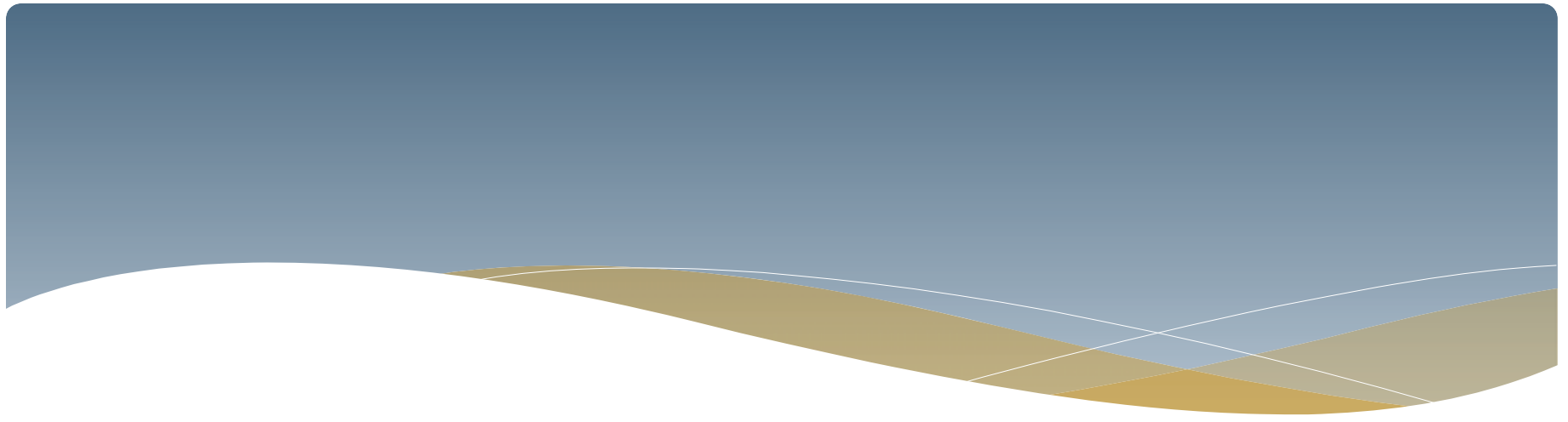
The solution

- Collaboration
 - Senior Mobility Work Group
- Awareness
- Research
- Interstate collaboration



Results

- 20 Recommendations for Meeting the Transportation Needs of Michigan's Aging Population – (2011 ASSHTO Sweet 16 research project)
- 16 Recommendations for Meeting the Mobility Needs of Older Adults in Rural Michigan – (2012)
- 2014 North American Conference on Elderly Mobility – Best Practices from Around the World – A Decade of Progress
- Michigan's Aging Driver Guide



Finding Curves

Presented By: Dean Kanitz, P.E. – MDOT Safety Analysis Engineer

The problem



- Curves? What curves? We don't have any curves?
- Crashes? What crashes? We don't have any crashes?
- Plan? What Plan? We don't have any plan?

Data/Background



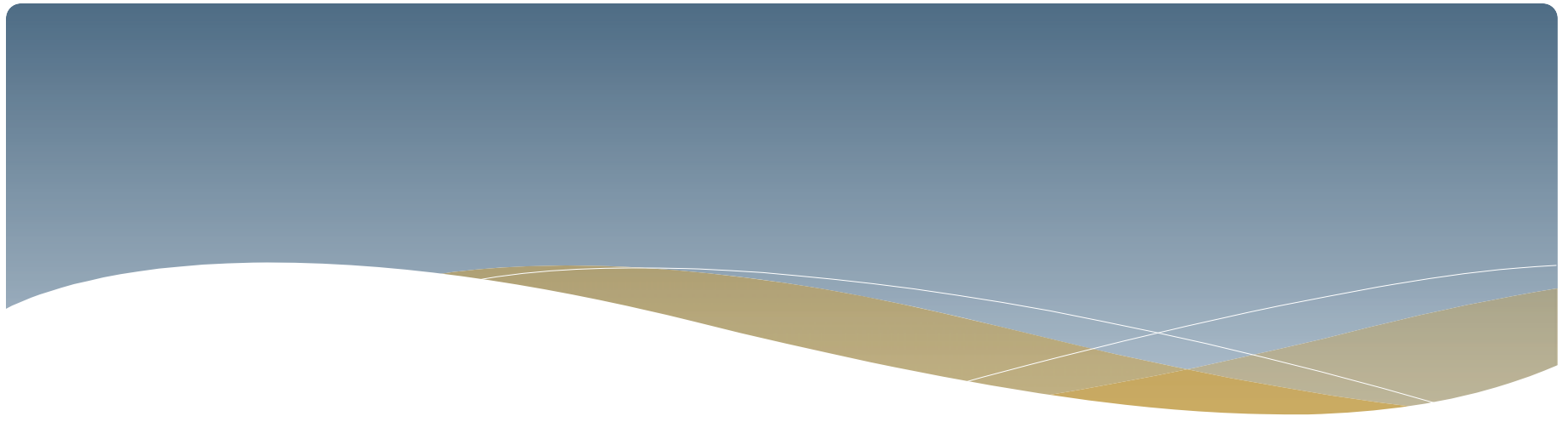
- Limited data on curves
- Overrepresentation of single vehicle crashes
- Overrepresentation of crashes on horizontal curves
- Pairing of information

The solution

- The path can only be seen one step at a time:
 - 0 – No data
 - 1 – Roadsoft
 - 2 – Automated collection
 - Attached aggregated crash (3Yr), sign and marking data (TEST)
 - *3 – Algorithm collection from framework (Curve Finder UW- Madison)*

Results

- Preliminary process to identify trunkline curves with potential for safety enhancements
- Horizontal and vertical curve inventory
- Near Future Products:
 - Statewide horizontal curve inventory
 - Statewide identification of curves with potential for safety enhancements



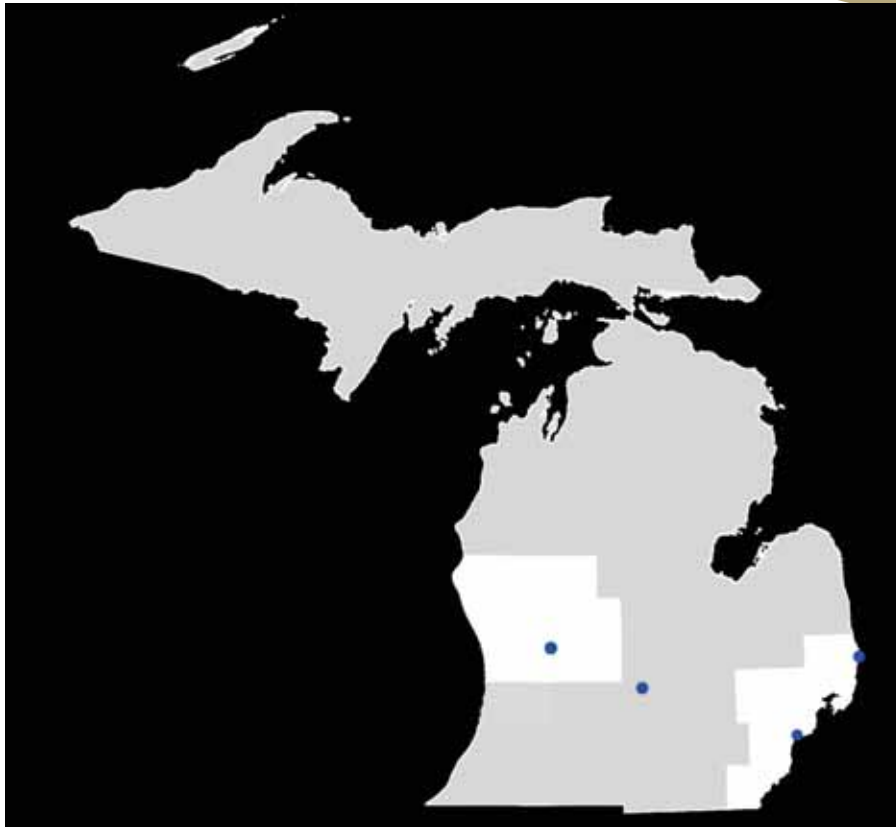
MDOT Transportation Operations Centers



Hilary Owen
System Operations Engineer
Operations Field Services Division
Michigan Department of Transportation



4 TOCs



Detroit:
Southeast Michigan Transportation
Operations Center (SEMTOC)

Port Huron:
Blue Water Bridge (BWB)

Grand Rapids:
West Michigan Transportation
Operations Center (WMTOC)

Lansing:
Statewide Transportation
Operations Center (STOC)

TOC Functions and Capabilities

Traveler Information Dissemination

Traffic Management

Traffic Incidents (crashes, disabled vehicles, weather)

Construction (Work Zone) Coordination

Planned Events (sporting events, concerts, etc.)

Freeway Courtesy Patrol

Data Collection (traffic and weather)

Travel Times



Traffic Incident



Construction



Weather



MDOT ITS Devices

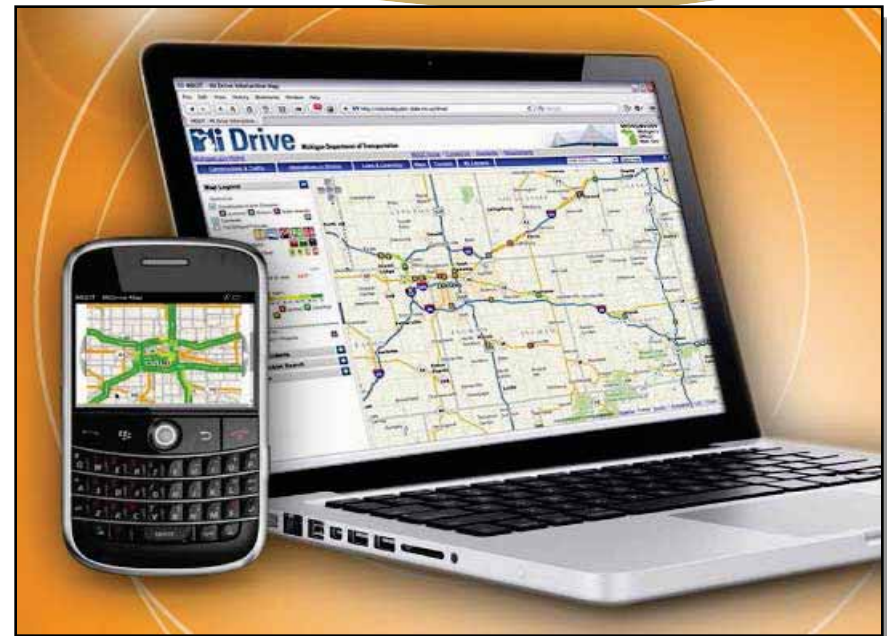


- CCTV – Monitors freeway & weather activity (481)
- MVDS – Detects rate of traffic flow (493)
- RWIS or ESS – Assists winter advisory/maintenance (56)
- DMS – Disseminates travel times, traffic incidents, construction & events (205)

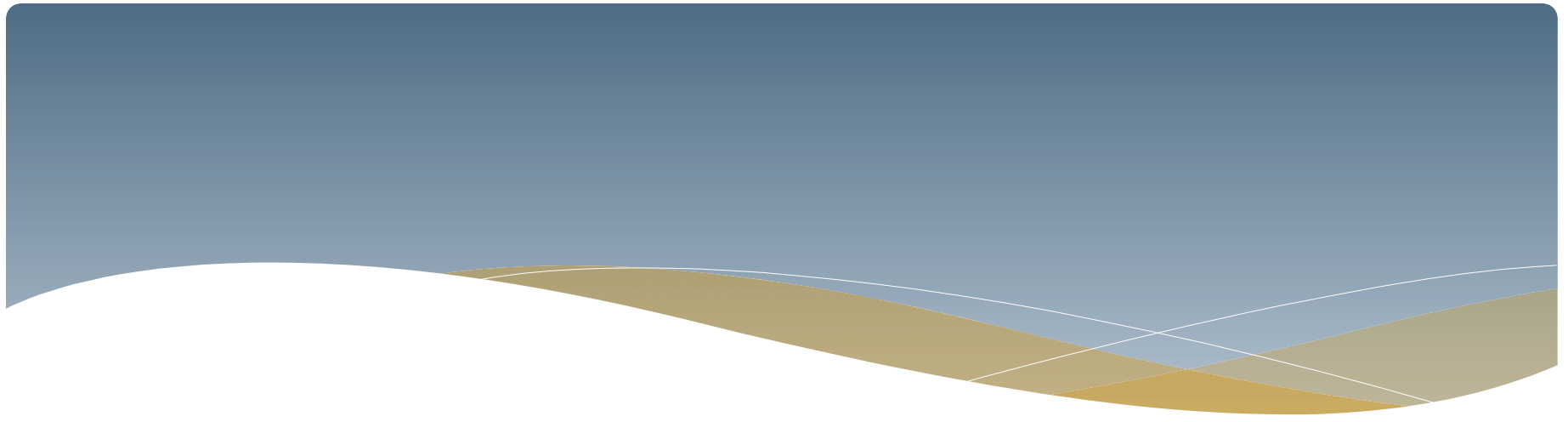
Mi Drive Web Site

Keeping motorists safe, mobile and informed with real-time travel information

- Know before you go:
Lane closures and traffic incidents
- Interactive maps
- Traffic cameras
Views along major roadways
- Now available
Mobile version for your phone



www.michigan.gov/drive



Traffic Signal Back Plates

Garrett Dawe, P.E.

Michigan Department of Transportation

North Region

The problem



- * M-32 @ Meijer Driveway west of Gaylord
- * New Traffic Signal – Box Span Design
- * Complaints that signals were difficult to see
- * Complaints that, when behind a truck, signals were not visible

Data/Background

- * MDOT is moving from diagonal spans to box spans
- * Several safety benefits with box span design
- * M-32 @ Meijer revealed some flaws, particularly on roads with a single through lane in each direction.
- * Several rural intersections have developed new crash patterns after the box span was constructed



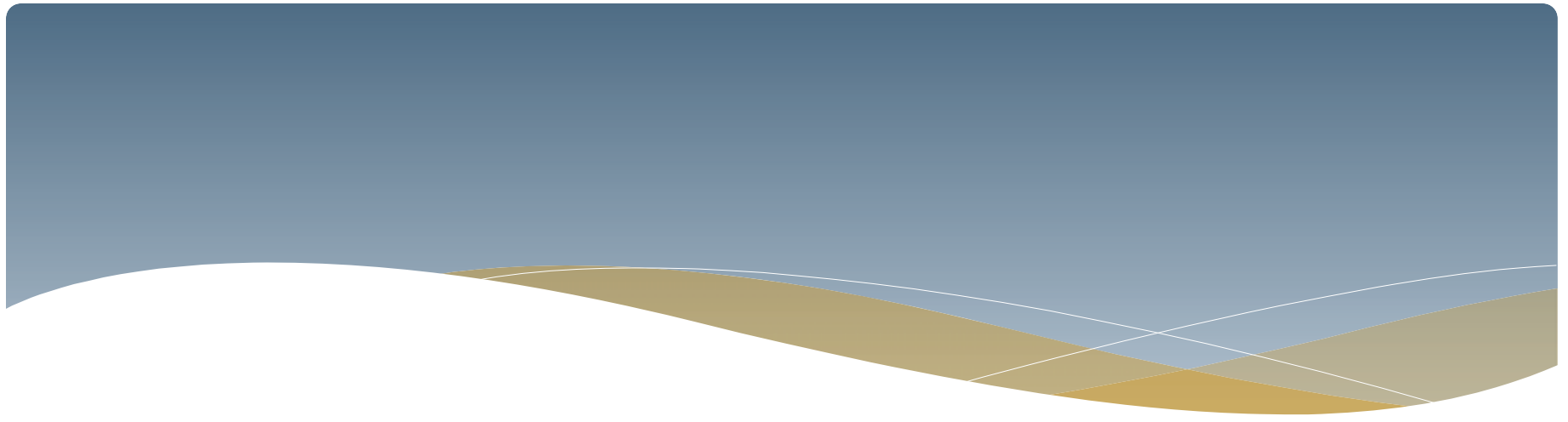
The solution

- * Add tethered back plates
- * Add low level signals



Results





Sign Mounted Flashing Beacons

Genesee County, Michigan

- Currently have 13 Intersections
- 1 Curve
- 3 Intersections scheduled for 2014

Wilson & Henderson



- Double Beacon Flashers
- Double Advance Warning Signs
- Reflective Panels for Sign Supports
- Cross Traffic Does NOT Stop Panel
- Stop Bar
- Pavement Legend

Wilson Road & Henderson Road



Davison & Oak



Davison Road & Oak Road



- Upgrade Existing Overhead Beacon Flasher
- Place Beacon Flasher on Advance Warning Sign
- Reflective Panels on Sign Supports
- Stop Bar
- Pavement Legend

Mt. Morris & Jennings



Mt. Morris Road & Jennings Road



- Signs Doubled
- Beacon Flasher Mounted to Signs on Right
- Reflective Panels on Sign Supports
- Cross Traffic Does NOT Stop Panels
- Stop Bar
- Pavement Legend

Sign Mounted Flashing Beacons - Genesee County, MI

T #	Intersection	Crash Frequency per Year				
		2008	2009	2010	2011	2012
	Installation Year 2009					
T346	Hill & Elms	2	9	1	2	2
	Installation Year 2010					
T363	Wilson & Henderson	2	4	1	2	0
T312	Elms & Carpenter	5	8	5	5	5
T116	Grand Blanc & Morrish	2	3	2	2	5
T357	Seymour & Lennon	5	3	5	6	4
T129	Grand Blanc & Duffield	5	5	3	2	1
	Installation Year 2011					
T364	Ballenger Hwy Curves	8	5	4	6	9
	Installation Year 2012					
T369	Green & M15	4	5	7	4	2
T367	Lapeer & Oak	8	6	4	7	6
T270	Davison & Oak	3	3	4	2	6
T366	Lake & Tuscola	2	0	1	1	2
T368	Potter & Irish	2	1	1	2	5
	Installation Year 2013					
T304	Lewis & Frances	2	2	3	4	1
T370	Mt. Morris & Jennings	2	2	4	3	2
	Installation Year 2014					
T373	Morrish & Calkins	1	2	1	0	0
T151	Grand Blanc & Seymour	3	1	1	1	0
T336	Lewis & Wilson	1	3	1	1	1

Questions?